Maryland Department of Health and Mental Hygiene

2009 Recommended Childhood and Adolescent Immunization Schedule

Vaccine ▼ / Age ►	Birth	2 mos	4 mos	6 mos	12 mos	15 mos	18 mos	2-3 yrs	4-6 yrs	11-12 yrs	13-18 yrs
Hepatitis B[1]	**Hep B[1]**	**Hep B**		**Hep B**							
Rotavirus[2]		**RV**	**RV**	**RV**							
Diphtheria, Tetanus, Pertussis[3]		**DTaP**	**DTaP**	**DTaP**		**DTaP**			**DTaP**	**Tdap[4]**	If previously unvaccinated, vaccinate[5]
Haemophilus Influenzae type b[6]		**Hib**	**Hib**	**Hib**		**Hib**	If previously unvaccinated, vaccinate				
Pneumococcal[7]		**PCV7**	**PCV7**	**PCV7**	**PCV7**						
Polio[8]		**IPV**	**IPV**	**IPV**					**IPV**		
Influenza[9]	**All children 6 months — 18 years of age**										
Measles, Mumps, Rubella[10]					**MMR**				**MMR**		
Varicella[11]					**Var**				**Var**	Provide second dose if needed	
Hepatitis A[12]					**HepA**		**HepA**	Certain High-Risk Groups			
Meningococcal[13]								Certain High-Risk Groups		**MCV4**	If previously unvaccinated, vaccinate
Human Papillomavirus[14]										**HPV (3 doses)**	If previously unvaccinated, vaccinate

Catch-Up Vaccination

Pre-adolescent Assessment

Certain High-Risk Groups

Approved by MedChi

Maryland 2009 Recommended Childhood and Adolescent Immunization Schedule Footnotes*

1 **All newborns should receive the first dose of hepatitis B vaccine at birth, before hospital discharge.** Four doses of vaccine may be administered (i.e. when combination vaccines are given after the birth dose). The last dose in the series (3rd or 4th) should be administered ≥ 24 weeks. Infants born to HBsAg-positive mothers should receive hepatitis B vaccine and 0.5 ml hepatitis B immune globulin (HBIG) within 12 hours of birth. All hospitals should ensure that newborns of mothers whose hepatitis B surface antigen (HBsAg) status is unknown receive their 1st dose of hepatitis B vaccine within 12 hours of birth. Maternal blood should be drawn at the time of delivery to determine the mother's HBsAg status; if the HBsAg test is positive, the infant should receive HBIG as soon as possible (no later than one week of age). Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody for HBsAg after completion of the Hep B vaccine series, at age 9-18 months (generally at the next well-child visit after completion of the vaccine series).

2 Two different rotavirus vaccine products (which differ in composition and schedule of administration) are licensed. Administer the first does of rotavirus vaccine at 6-14 weeks of age (maximum age, 14 weeks 6 days); the maximum age for the final dose is 8 months 0 days. Vaccination should not be initiated for infants age 15 weeks 0 days or older. If Rotarix® (RV1) is administered at ages 2 and 4 months, a third dose at 6 months is not indicated. If any dose in the series was RotaTeq® (RV5) or the product is unknown for any dose in the series, a total of three doses of rotavirus vaccine should be given.

3 Use diphtheria tetanus toxoids (DT) pediatric vaccine when pertussis vaccine is contraindicated. The 4th dose of DTaP may be administered as early as 12 months of age provided 6 months have elapsed since the 3rd dose and the child is unlikely to return at age 15 months age. If the 4th DTaP is administered after the 4th birthday, a 5th DTaP is not necessary.

4 Tdap is recommended for 11-12 year olds at the preadolescent assessment visit for those who have completed the recommended childhood DTP/DTaP vaccination series and have not received a Td booster dose.

5 Adolescents 13-18 years of age who missed the 11-12 year Td/Tdap booster dose should also receive a single dose of Tdap, 5 years after the last Td/DTaP dose, if they have completed the recommended childhood DTP/DTaP vaccination series. An interval of < 5 years may be used if pertussis immunity if needed. Subsequent Td vaccination is recommended every 10 years.

6 **If PRP-OMP (PedvaxHib® or ComVax® [Merck]) is administered at ages 2 and 4 months, a dose at 6 months is not required.** TriHiBit® (DTaP/Hib) should not be used at 2, 4, or 6 months, but can be used as the final dose in children 12 months or older. The final dose in the series should be administered at age ≥ 12 months. Any **unvaccinated child** 15-59 months of age should receive a single dose of vaccine and may be given any one of the three conjugate vaccines licensed for this age group.

7 **The heptavalent pneumococcal conjugate vaccine (PCV7) is recommended for all children age 2-23 months and for children aged 24-59 months of age with certain medical conditions. Administer 1 dose of PCV7 to all healthy children age 24-59 months having any incomplete schedule.** The final dose in the series should be given at age ≥ 12 months. Pneumococcal polysaccharide vaccine (PPV) is recommended in addition to PCV7 for certain high risk groups 2 years of age or older. See MMWR 2000;49(RR-9):1-38.

8 The fourth dose of IPV is not needed if the third dose is given on or after the fourth birthday.

9 During the annual influenza season, **all children 6 months to 18 years of age are recommended to receive influenza vaccine.** For healthy non-pregnant persons (i.e. those without underlying me dical conditions) age 2-49 years, either LAIV or TIV may be used. Administer 2 doses (separated by ≥ 4 weeks) to children 6 months—8 years who received influenza vaccine for the first time this season or who were vaccinated for the first time in a previous season but only received 1dose of LAIV or TIV. TIV is recommended for pregnant women.

10 **MMR vaccine must be administered on or after the first birthday.** The second dose of MMR is routinely recommended at 4-6 years of age (school entry), however, it may be administered at any visit after 12 months of age, provided at least 4 weeks have elapsed since receipt of the 1st dose.

11 The first dose of **varicella (chickenpox) vaccine must be administered on or after the first birthday.** The second dose of varicella vaccine is routinely recommended at 4-6 years of age (school entry), provided that ≥ 3 months have elapsed since the first and both doses are administered at age ≥ 12 months. Do not repeat the second dose, if administered ≥ 28 days following the first dose. For persons ≥ 13 years of age without evidence of immunity or history of disease, administer 2 doses of varicella vaccine at least 4 weeks apart.

12 Hepatitis A vaccine is recommended for all children 12-23 months of age. Administer 2 doses at least 6 months apart. Children not vaccinated by age 2 years can be vaccinated at subsequent visits. Previously unvaccinated children 2-18 years of age with certain risk factors should be vaccinated (i.e., Residents of areas with high incidence of hepatitis A, travelers, and persons with chronic liver diseases). See MMWR 2006;55(RR-7):1-23.

13 Meningococcal conjugate vaccine (MCV4) is recommended for 11-12 year olds at the preadolescent assessment visit. Previously unvaccinated persons 13 - 18 years of age should be vaccinated. **Proof of vaccination is required for individuals living in on-campus student housing at Maryland institutions of higher learning (COMAR 10.06.05)**. MCV4 is recommended for persons 2 – 10 years of age and older where medically indicated. See MMWR 2007;56(48);1265-1266. Persons who received MPSV 5 or > years ago and remain at an increased risk for meningococcal disease should be revaccinated with MCV.

14 **HPV vaccine is routinely recommended for females aged 11-12 years at the preadolescent visit.** Three doses should be administered with the second dose given at least 2 months after the first and the third dose given at least 6 months after the first dose. The vaccination series can be started as early as nine years of age. Previously unvaccinated females aged 13-26 years old are recommended for vaccination. The vaccine should be administered before onset of sexual activity (i.e., before women are exposed to the viruses), but females less than 26 years of age who are sexually active can still be vaccinated. HPV vaccine is not recommended for use in pregnant women.

Immunocompromising conditions: Inactivated vaccines generally are acceptable (e.g. pneumococcal, meningococcal, and influenza [trivalent inactivated influenza vaccine]) and live vaccines generally are avoided in persons with immune deficiencies or immunocompromising conditions. Information on specific conditions is available at http://www.cdc.gov/vaccines/pubs/acip-list.htm.

2009 Recommended Adult Immunization Schedule

Age ► / Group Vaccine ▼	19-26 Years	27-49 Years	50-59 Years	60-64 Years	65 Years and Older
Tetanus, diphtheria, pertussis (Tdap)[1]	Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yr[1]				Td dose booster every 10
Human Papilomavirus (HPV)[2]	3 doses (females)				
Varicella[3]	2 doses				
Herpes Zoster[4]				1 dose	
Measles, Mumps, Rubella (MMR)[5]	1 or 2 doses		1 dose		
Influenza[6]			1 dose annually		
Pneumococcal (polysaccharide)[7]	1 or 2 doses				1 dose
Hepatitis A[8]	2 doses				
Hepatitis B[9]	3 doses				
Meningococcal[10]	1 or more doses				

Recommended for all persons who meet age indications for the vaccine and lack evidence of immunity

Recommended for persons in certain risk groups

2009 Maryland Adult Immunization Schedule Footnotes*

1. Adults 19—64 who received their last dose of Td vaccine ≥ 10 years ago should be vaccinated with a single dose of Tdap. Intervals shorter than 10 years since the last Td vaccination may be used; a 2 year interval between Td and Tdap is suggested to reduce the risk of reaction to vaccination. Tdap is also recommended for any adult (i.e. parents, household contacts, child care providers, healthcare providers, etc) who has or anticipates close contact with an infant less than 12 months of age. There is no minimum interval to wait between Td and Tdap when it is given to protect infants or vulnerable patients. See *MMWR* 12/15/2006; 55(RR17).
2. Three doses should be administered with the second doses given at least 2 months after the first dose and the third dose given at least six months after the first dose. The vaccine should be administered before onset of sexual activity (i.e., before women are exposed to the viruses), but females 19- 26 years of age who are already sexually active can still be vaccinated. HPV vaccine is not recommended for use in pregnant women. *MMWR* 03/23/2007; 56 (RR-2):1-24.
3. Recommended for all adults without evidence of immunity to varicella. Not recommended for women who are pregnant or might become pregnant within 4 weeks of receiving the vaccine. *MMWR* 06/22/2007; 56(RR04):1-40.
4. A single dose of Herpes Zoster (also called Shingles) vaccine is recommended for all persons 60 years of age and older. *MMWR* 06/06/2008; 57(RR-5).
5. Adults born in or after 1957 should receive at least one dose of MMR. Two (2) doses are recommended for adults who have certain risk factors. For women of child-bearing age, routinely determine rubella immunity and counsel women regarding congenital rubella syndrome. Not recommended for women who are pregnant or might become pregnant within 4 weeks of receiving the vaccine. Reference *MMWR 05/22/*1998; 47(RR-8):1-57.
6. Influenza vaccine is recommended yearly for all persons 50 years of age or older, people who have chronic medical conditions, women who are or will become pregnant during flu season, health care workers with direct patient care, residents of long term care, household members or caregivers of high-risk persons, and any other persons who wish to reduce the risk of becoming ill with influenza or of transmitting influenza to others. Depending on the flu season a tiered vaccination system may be issued. Non-pregnant healthy persons aged 2-49 years without high risk conditions who are not contacts of severely immuno-compromised persons in special care units, may received Live Attenuated Influenza Vaccine (LAIV) in lieu of inactivated vaccine. TIV is recommended for pregnant women. See *MMWR* 08/08/2008; 57(RR07).
7. Pneumococcal Polysaccharide is recommended for persons with certain chronic medical conditions, including asthma and smoking, and residents of nursing homes. Unvaccinated persons should receive one dose at age 65. One time revaccination of persons who were vaccinated 5 or more years previously and with certain chronic medical conditions. For persons 65 and older, one-time revaccination if they were vaccinated 5 or more years previously and were aged less than 65 years at the time of primary vaccination. Reference *MMWR 1997*; 46(RR-8):1-24.
8. Hepatitis A - Reference *MMWR* 12/08/2006; 55(RR-16):1-25.
9. Recommended for all unvaccinated adults at risk for hepatitis B virus infection and all adults seeking protection from HBV infection. Recommended for adults in settings where a high proportion of adults are likely to have risk factors (these settings include STD/HIV treatment facilities, drug abuse treatment facilities, correctional facilities, health care settings serving men who have sex with men, chronic hemodialysis facilities and end-stage renal disease programs, and institutions and nonresidential daycare facilities for developmentally disabled persons.) *MMWR* 01/09/2009; 57 (53):Q-1-Q-4.
10. Consider vaccination for persons with medical indications and all students enrolled in institutions of higher learning. **Proof of vaccination is required for individuals living in on-campus student housing at Maryland institutions of higher learning (COMAR 10.06.05)**. Revaccination for MCV after 5 years might be indicated for adults previously vaccinated with MPSV who remain at increased risk for infection. Two meningococcal vaccines are licensed for use. Meningococcal conjugate (MCV4) recommended for routine use in persons 11-55 years of age. *MMWR* 12/07/2007; 56(48):1265-1266.
11. Immunocompromising conditions: Inactivated vaccines generally are acceptable (e.g. pneumococcal, meningococcal, and influenza [trivalent inactivated influenza vaccine]) and live vaccines generally are avoided in persons with immune deficiencies or immunocompromising conditions. Information on specific conditions is available at http//www.cdc.gov/vaccines/pubs/acip-list.htm.

For Children and Adolescents Who Start Late or Who Are >1 Month Behind

There is no need to restart a vaccine series regardless of the time that has elapsed between doses.

Catch-up schedule for children age 4 months through 6 years					
Vaccine	**Minimum Age For Dose 1**	**Minimum Interval Dose 1 to Dose 2**	**Minimum Interval Dose 2 to Dose 3**	**Minimum Interval Dose 3 to Dose 4**	**Minimum Interval Dose 4 to Dose 5**
Hepatitis B[1]	**Birth**	**4 weeks**	**8 weeks** (and 16 weeks after first dose)		
Rotavirus[2]	**6 weeks**	**4 weeks**	**4 weeks**		
DTaP[3]	**6 weeks**	**4 weeks**	**4 weeks**	**6 months**	**6 months**[3]
Hib[4]	**6 weeks**	**4 weeks:** if 1st dose given at age <12 mos **8 weeks (as final dose):** if 1st dose given at age 12-14 mos **No further doses needed:** if first given at age 15 mos or older	**4 weeks**: if current age <12 mos **8 weeks (as final dose)**[4]: if current age 12 mos or older and 2nd dose given at age <15 mos **No further doses needed:** if previous dose given at age 15 mos or older	**8 weeks (as final dose):** this dose only necessary for children age 12 mos - 5 yrs who received 3 doses before age 12 mos	
Pneumococcal[5] (PCV7)	**6 weeks**	**4 weeks:** if 1st dose given at age <12 mos and current age <24 mos **8 weeks (as final dose):** if 1st dose given at age 12 mos or older or current age 24-59 mos **No further doses needed:** for healthy children if 1st dose given at age 24 mos or older	**4 weeks:** if current age <12 mos **8 weeks (as final dose)**: if current age 12 mos or older **No further doses needed:** for healthy children if previous dose given at age 24 mos or older	**8 weeks (final dose):** this dose only necessary for children age 12 mos - 5 yrs who received 3 doses before age 12 mos	
IPV[6]	**6 weeks**	**4 weeks**	**4 week**	**4 weeks**[6]	
MMR[7]	**12 months**	**4 weeks**			
Varicella[8]	**12 months**	**3 months**			
Hepatitis A	**12 months**	**6 months**			

Catch-up Schedule for Persons Aged 7—18 Years					
Tdap,Td[9]	**7 years**	**4 weeks**	**4 weeks:** if first dose administered at age < 12 months **6 months:** If first dose administered at age ≥ 12 months	**6 months:** If first dose administered at age < 12 months	
HPV[10]	**9 years**	**4 weeks**	**12 weeks** (and 24 weeks after first dose)		
Hepatitis A	**12 months**	**6 months**			
Hepatitis B[1]	**Birth**	**4 weeks**	**8 weeks** (and 16 weeks after the first dose)		
IPV[6]	**6 weeks**	**4 weeks**	**4 weeks**	**4 weeks**[6]	
MMR[7]	**12 months**	**4 weeks**			
Varicella[8]	**12 months**	**4 weeks:** If first dose administered at age ≥ 13 years **3 months:** if first dose administered at age < 13 years			

1. Hepatitis B: Administer the 3 dose series to those who were not previously vaccinated. A 2-dose series of Recombivax HB® is licensed for children aged 11-15 years.

2. Rotavirus: The maximum age for the first dose is 14 weeks 6 days. Vaccination should not be initiated for infants aged 15 weeks 0 days or older. Administer the final dose in the series by age 8 months 0 days. If Rotarix® was administered for the first and second doses, a third dose is not indicated.

3. DTaP: The fifth dose is not necessary if the fourth dose was administered at age ≥4 years. DTaP is not indicated for persons age ≥7 years.

4. Hib: Vaccine is not generally recommended for children age 5 years or older. However, studies suggest good immunogenicity in persons who have sickle cell disease, leukemia, or HIV infection, or who have had a splenectomy; administering 1 dose of Hib vaccine to these persons is not contraindicated. If current age <12 months and the first 2 doses were PRP-OMP (PedvaxHIB® or ComVax®), the third (and final) dose should be given at age 12-15 months and at least 8 weeks after the second dose.

5. PCV7: Vaccine is not generally recommended for children age 5 years or older.

6. IPV: For children who received an all-IPV or all-OPV series, a fourth dose is not necessary if third dose was given at age 4 years or older. If both OPV and IPV were given as part of a series, a total of four doses should be given, regardless of the child's current age.

7. MMR: The second dose of MMR is recommended routinely at age 4 - 6 years, but may be given earlier if desired.

8. Varicella: The second dose of Varicella vaccine is recommended routinely at age 4 - 6 years, but may be given earlier if desired. Do not repeat the second dose in persons aged < 13 years if administered ≥ 28 days after the first dose

9. Tdap, Td: Tdap should be substituted for a single dose of Td in the primary catch-up series or as a booster if age appropriate; use Td for the other doses. A 5-year interval from the last Td dose is encouraged when Tdap is used as a booster dose. A booster (fourth) dose is needed if any of the previous doses were administered at age < 12 months. See MMWR 2006; 55 (No. RR-3).

10. HPV: Administer the HPV vaccine series to females at age 13 -18 years if not previously vaccinated.